

Fig. 1.

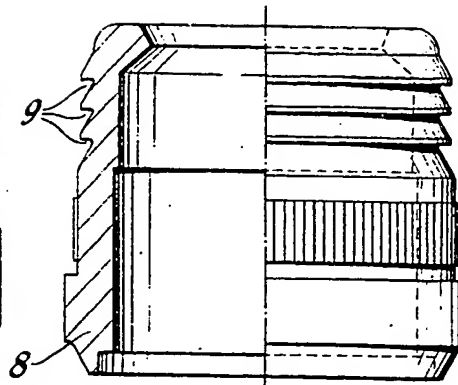


Fig. 2.

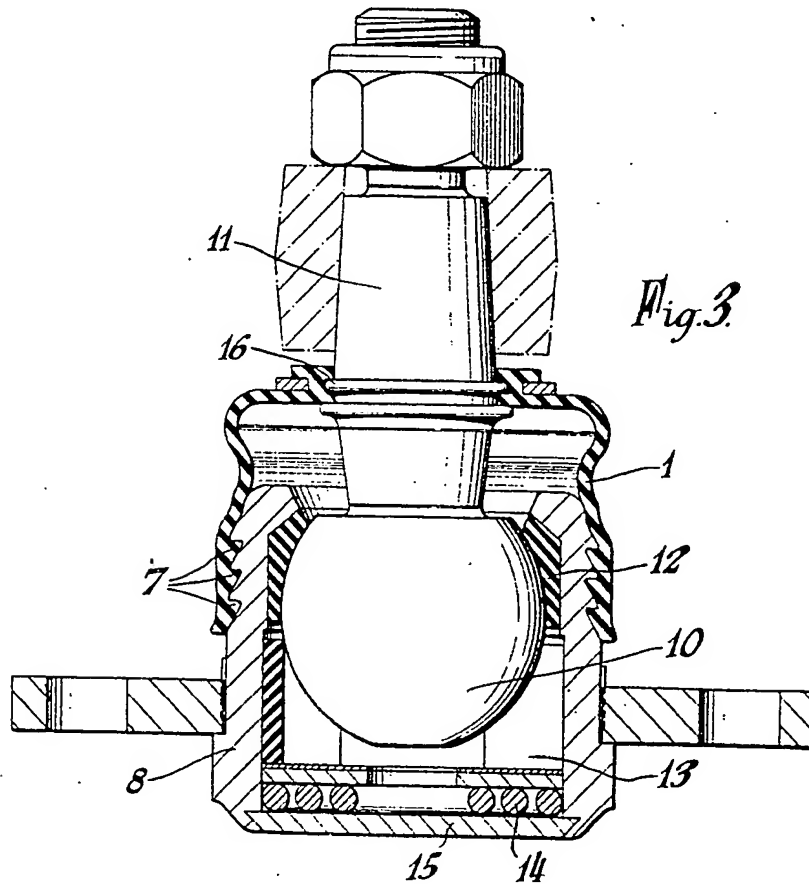


Fig. 3.

# PATENT SPECIFICATION

1,005,682

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## COMPLETE SPECIFICATION

### DRAWINGS ATTACHED

#### Improvements in and relating to Sealing Boots for Joint Assemblies

We, AUTOMOTIVE PRODUCTS COMPANY LIMITED, a British Company, of Tachbrook Road, Leamington Spa, Warwickshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

This invention relates to sealing boots of the kind used in joint assemblies having relatively movable parts such as joints of the ball and socket type, the boot being provided for the purpose of preventing the ingress of dirt and moisture to the bearing surfaces of the joint assembly.

The invention has for its object to provide a construction of boot which will be more resistant to displacement upon relative movement of the relatively movable parts of a joint assembly than hitherto.

According to the invention a sealing boot for joint assemblies comprises an annular casing of natural or synthetic rubber or other elastomeric material, said casing being open at its opposite ends, the inner peripheral wall of the casing being provided for a portion of its axial length extending inwardly from the aperture at one end with annular projections spaced axially from one another which present in cross-section serrations of saw tooth form, said projections being engageable in complementary annular grooves in the outer periphery of the part of the joint assembly on which the boot is to be mounted.

An embodiment of the invention will now be described by way of example by aid of the accompanying drawings in which:—

Figure 1 shows the sealing boot partly in section;

Figure 2 shows the socket of a ball and socket joint also partly in section, adapted for the assembly of the sealing boot of

Figure 1; and

Figure 3 shows a tie rod ball and socket joint assembly in section, incorporating the sealing boot of Figure 1.

The sealing boot shown in Figure 1 of the accompanying drawings is primarily for use with the tie rod ball and socket joint shown in Figure 3. The sealing boot is generally of conventional form and consists of an annular casing 1 which is made as a moulding in natural or synthetic rubber or other elastomeric material. The casing 1 is open at its opposite ends, the aperture 2 at one end being dimensioned to permit the boot to be assembled on the socket of the ball and socket joint. The aperture 3 at the opposite end of the casing and through which the joint pin extends has an external surrounding flange 4 which is formed to provide an internal annular groove 5 and an external annular groove 6 for a purpose hereinafter described. The inner peripheral wall of the casing is provided for a portion of its axial length extending inwardly from the aperture 2 with annular projections 7 axially spaced from one another, the projections providing serrations which present in cross-section a saw-tooth formation. Any desired number of annular projections can be provided. As shown in Figure 2 of the drawings, the portion of the socket 8 of the joint embraced by the boot is formed to provide a corresponding number of complementary grooves 9 each of which receives one of the annular projections 7 when the sealing boot is assembled in position as shown in Figure 3 of the drawings.

The tie rod joint shown in Figure 3 is generally of conventional construction and comprises the socket 8 above referred to which receives the ball head 10 of the ball pin 11, bearing bushes 12 and 13 locating

the ball head in the socket, bearing contact between the ball head and the bushes being maintained by spring loading provided by a compression spring 14 acting between the bearing bush 13 and a closure plate 15 secured in the open end of the socket 8. When the sealing boot is assembled the inner annular groove 5 in the flange 4 receives a shoulder 16 on the shank of the ball pin 11, a spring retaining ring being disposed in the external annular groove 6. In use the engagement of the annular projections 7 in the complementary grooves 9 will resist displacement of the sealing boot during angular movement of the ball pin. If desired a "Jubilee" (R.T.M.) clip or other type of releasable clip can be fitted around the portion of the sealing boot embracing the socket, the clip when tightened serving to retain the projections in the grooves.

WHAT WE CLAIM IS:—

1. A sealing boot for joint assemblies comprising an annular casing of natural or synthetic rubber or other elastomeric material, said casing being open at its opposite ends, the inner peripheral wall of the casing being provided for a portion of its axial length extending inwardly from the

aperture at one end with annular projections spaced axially from one another which present in cross-section serrations of saw tooth form said projections being engageable in complementary annular grooves in the outer periphery of the part of the joint assembly on which the boot is to be mounted.

2. A sealing boot as herein described and shown in Figure 1 of the accompanying drawings.

3. A ball and socket joint having a sealing boot as claimed in claim 1 or 2 the projections on the boot engaging in complementary annular grooves in the outer periphery of the part of the assembly embraced thereby, the serrations and grooves being formed so as to resist axial displacement between the sealing boot and the part of the assembly on which it is assembled.

4. A ball and socket joint as herein described and shown in Figure 3 of the accompanying drawings.

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